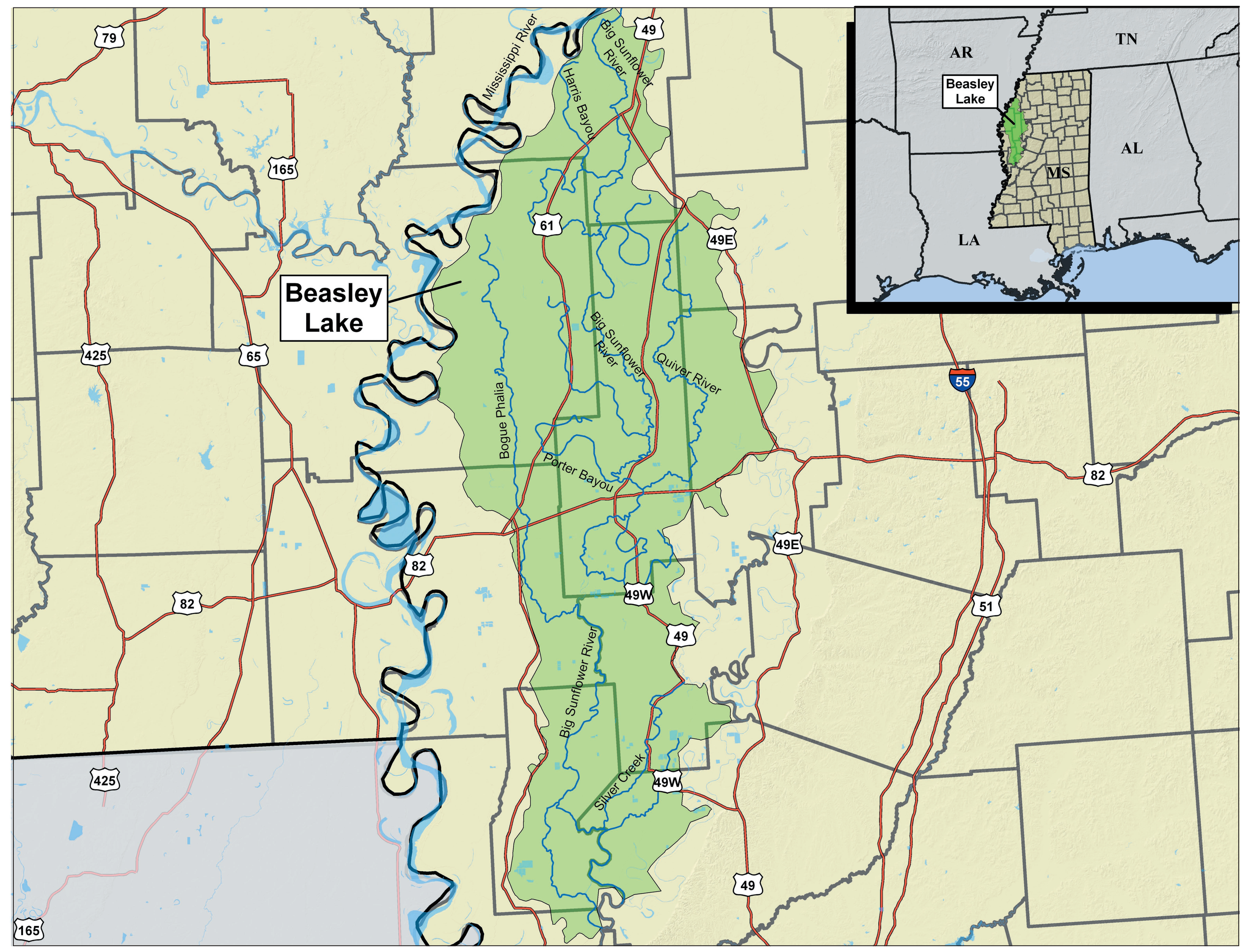
United States Department of Agriculture

Conservation Effects Assessment Project (CEAP)

Beasley Lake Watershed, Mississippi: 2004-2006

An ARS* Benchmark Research Watershed, one of 24 CEAP watershed projects.



CEAP Assessment

Monitor lake water quality to assess the effectiveness of best management practices that reduce contaminants and improve lake ecology and productivity.

Watershed Description

- Part of the Big Sunflower River watershed within the Yazoo River Basin.
- 2,100 acres
- Surface area of the receiving oxbow lake is approximately 62 acres.
- 77% crop land
- A Total Maximum Daily Load (TMDL) has been established for pathogens, low dissolved oxygen, pesticides, sediment, and nutrients.

Issues: Runoff is contaminated with sediments, nutrients (phosphorus, nitrate, ammonium), and pesticides. The receiving oxbow lake is impacted by suspended sediments that suppress the aquatic food chain.

*Agricultural Research Service

Approach

Water sampling: Water sampled from oxbow lake and wetlands

Watershed models: AnnAGNPS (Annualized Agricultural NonPoint Source)

Water quality monitoring: Runoff, sediments, total organic carbon, nutrients, and pesticides

Assess practices: Vegetative buffers, conservation tillage, constructed wetlands, grade control pipes, and conversion of row cropland to Conservation Reserve Program (CRP).

Communicating Results

Reports and papers on individual research projects within the watershed and complementary studies in nearby areas. Examples include: Delta oxbow limnology, effects of CRP on runoff and soil characteristics, lake sediment toxicity in various lakes, including Beasley Lake, assessment of wetlands in mitigating pesticides effects, and edge-of-field effects on pesticide in runoff.

Collaborators

- Mississippi Department of Wildlife Fisheries and Parks
- Mississippi State University
- Arkansas State University

Contacts

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Cotton along riparian forest area.

Row crops with cypress trees and lake in background.

Cypress trees and lake with crop fields in the background.

Vegetated ditches in Beasley Lake Watershed are used for trapping sediments and processing agrichemicals.

Row crop with buffer area, then riparian area and lake.

Technicians working with grass hedge.

Timeline

2005
December 1st ARS Benchmark Watersheds progress report

2006
December 2nd ARS Benchmark Watersheds progress report

2007
December 3rd ARS Benchmark Watersheds progress report

2008
December 4th ARS Benchmark Watersheds progress report

www.nrcs.usda.gov/technical/nri/ceap/